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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,882

10/13/2005

Seugdong Lee

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EXAMINER

KAO, JUTAI

ART UNIT

PAPER NUMBER

2473

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,882	LEE ET AL.	
	Examiner	Art Unit	
	JUTAI KAO	2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 8-17 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 8-17 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/23/2010 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 8-17 have been considered but are moot in view of the new ground(s) of rejection.

Regarding claims 8 and 10, the applicant argues that the amended claim includes that the data packets that are counted by the packet counters are ingressed or egressed through each of the ports, and the traffic volume is also controlled for each of the ports while the previously cited reference, Rom, discloses a single buffer jointly stores and counts the data packets that are input through any of the plurality of ports.

However, the applicant's interpretation of Rom is incorrect. As shown in Fig. 2 of Rom, a plurality of such buffer exists, one for each of the output port. Fig. 3, shows the buffer in detail, including the counters for the particular buffer. That is, each output port of the plurality of output ports include the claimed counters for storing counting information of data packets ingressed and egressed through each of the output port.

Regarding the Kesavan, the applicant argues that Kesavan lacks the teaching of outputting traffic control command. A new reference is cited to teach this deficiency in the current office action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 8-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rom (US 6,252,849) in view of Kesavan (US 2004/0062200) and Melvin (US 2004/0081094).

Rom discloses a flow control mechanism using output port buffer allocation including the following features.

Regarding claim 8, an apparatus (see apparatus 201 shown in Fig. 2 and apparatus 301 in Fig. 3) for controlling traffic over a network (see network shown in Fig. 1), comprising: a switching processor, including a plurality of ports connectable to a network line (see plurality of output ports and input ports in Fig. 2 and Fig. 3) and packet counter registers for storing counting information on packets (see counter 1-N in Fig. 3 for a buffer; wherein Fig. 2 shows that each output port is associated with one of such buffer) ingressed and egressed through each of the ports of said plurality of ports (see “Counter 2 is incremented in response to an information packet received from input port 2 being admitted into buffer 305. Counter 2 is decremented in response to an information packet received from input port 2 and held in buffer 305, being transmitted from output port 301” recited in column 4, lines 60-65) and for controlling ingress and egress packet traffic volume for each of said plurality of ports in response to an input traffic control command (see “A PAUSE frame is provided to an information packet source by a downstream destination to inhibit transmission of information packets such as information frames by the information packet source to the downstream destination for a specified period of time” recited in column 5, lines 8-12).

Regarding claim 10, an apparatus (see apparatus 201 shown in Fig. 2 and apparatus 301 in Fig. 3) for controlling traffic over a network (see network shown in Fig. 1), comprising: a switching processor, including a plurality of ports connectable to a network line (see plurality of output ports and input ports in Fig. 2 and Fig. 3) and packet counter registers for storing counting information on packets (see counter 1-N in Fig. 3 for a buffer; wherein Fig. 2 shows that each output port is associated with one of such

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buffer) ingressed and/or egressed through each of the ports of said plurality of ports (see “Counter 2 is incremented in response to an information packet received from input port 2 being admitted into buffer 305. Counter 2 is decremented in response to an information packet received from input port 2 and held in buffer 305, being transmitted from output port 301” recited in column 4, lines 60-65) and for controlling ingress and/or egress packet traffic volume for said plurality of ports in response to an input traffic control command (see “A PAUSE frame is provided to an information packet source by a downstream destination to inhibit transmission of information packets such as information frames by the information packet source to the downstream destination for a specified period of time” recited in column 5, lines 8-12).

Regarding claims 9 and 12, wherein said input traffic control command is a control command that enables said packets ingressed or egressed through said port to be queued, dropped or paused (see “PAUSE” command recited in column 5, lines 8-12).

Rom does not disclose the following features: regarding claims 8 and 10, a controller for registering traffic volume for each of said plurality of ports in an internal register, said traffic volume being entered by a user through a data input unit as a user value, and for comparing a user value for each of said plurality of ports with a value in a respective one of said packet counter registers for said each port so as to output said input traffic control command for said each port to said switching processor.

Kesavan discloses a packet storm control including the following features.

Regarding claims 8 and 10, a controller (see computing device 101 in Fig. 1 including the storm control device 110) for registering traffic volume (see “threshold value” may also be established for each of the particular ports” recited in paragraph [0031]) for each of said plurality of ports in an internal register (see memory 124 in Fig. 1, the threshold value must be stored somewhere in memory), said traffic volume being entered by a user through a data input unit as a user value (see “threshold value may be established by the user” recited in paragraph [0031]), and for comparing a user value for each of said plurality of ports with a value in a respective one of said packet counter registers for said each port so as to output said input traffic control command for said each port (see “If...the threshold was not exceeded...allow designated packets to pass through without being dropped...If...threshold was exceeded...the may continue to drop all designated packets for the next time interval..” recited in paragraph [0032]; also see “When the number of designated packets either received or, alternatively, transmitted by a particular port 106, 107 or 108 reaches the configured threshold value in the configured time interval, respectively, the storm control device 110 may drop the designated packets...” recited in paragraph [0029]) to said switching processor (see Forwarding device 112 in Fig. 1).

Melvin discloses a system for output flow control in network multiplexers including the following features.

Regarding claims 8 and 10, a controller for comparing a user value for each of said plurality of ports with a value in a respective one of said packet counter registers for said each port (see “a queue already containing a number of message descriptors

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greater than the high threshold...” recited in paragraph [0039]) so as to output said input traffic control command for said each port to said switching processor (see “then the transmit queue sends a flow control directive to the source to direct the source to employ hardware or protocol level flow control procedures in order to temporarily prevent reception of additional communications packets by the source” recited in paragraph [0039]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Rom using features, as taught by Kesavan and Melvin, in order to prevent degradation network performance due to excessive packets (see Kesavan paragraph [0032]) and in order to initiate selective flow control and prevent monopolization of resources (see paragraph [0005] of Melvin).

6. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rom, Kesavan and Melvin as applied to claims 10 above, and further in view of Wang (US 2004/0151184).

Rom, Kesavan and Melvin disclose the claimed limitations as explained above.

Rom also discloses the following features.

Regarding claims 13, wherein said input traffic control command is a control command that enables said packets ingressed or egressed through said port to be queued, dropped or paused (see “PAUSE” command recited in column 5, lines 8-12).

Rom, Kesavan and Melvin do not disclose the following features: regarding claim 11, wherein said ingress and/or egress traffic volume is controlled via a token bucket, which is shared between the ports of said plurality of ports.

Wang discloses a class-based rate control using multi-threshold leaky bucket including the following features.

Regarding claim 11, wherein said ingress and/or egress traffic volume is controlled via a token bucket, which is shared between the ports of said plurality of ports (see “each packet received from the network access device 108 removes token from a bucket input buffer 114...” recited in paragraph [0009]; that is, a token bucket is used to control the buffer representing the total traffic volume).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Rom, Kesavan and Melvin using features, as taught by Wang, in order to control the data rate at the claimed apparatus.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rom (US 6,252,849) in view of Kesavan (US 2004/0062200).

Rom discloses a flow control mechanism using output port buffer allocation including the following features.

Regarding claim 14, a method for controlling a traffic volume ingressed or egressed via a port or a plurality of ports of a switching processor (see apparatus 201 in Fig. 2 and apparatus 301 in Fig. 3), comprising the steps of comparing a user value with a respective value of said traffic volume (see “When the level of occupancy of a portion

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of the buffer allocated to an input port exceeds a first level or threshold, the switch provides a control signal to the upstream sources operably coupled to the input port to inhibit information packet transmissions to the input port" recited in column 5, lines 45-50; where the user value is the first threshold and the respective value is the level of occupancy of the buffer), said respective value being written in a packet counter register (see Counters 1-N in Fig. 3), and issuing a traffic control command to said switching processor (see "When the level of occupancy of a portion of the buffer allocated to an input port exceeds a first level or threshold, the switch provides a control signal to the upstream sources operably coupled to the input port to inhibit information packet transmissions to the input port" recited in column 5, lines 45-50).

Rom does not disclose the following features: regarding claim 14, entering a user value, by a user through a data input unit, for a maximum traffic volume.

Kesavan discloses a packet storm control including the following features.

Regarding claim 14, entering a user value, by a user through a data input unit, for a maximum traffic volume (see "threshold value may be established by the user or automatically input to the storm control device" recited in paragraph [0031]; in which the threshold established and input by the user must be entered using a data input device).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Rom using features, as taught by Kesavan, in order to prevent degradation network performance due to excessive packets (see Kesavan paragraph [0032]).

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8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rom Kesavan as applied to claim 14 above, and further in view of Wang (US 2004/0151184).

Rom and Kesavan disclose the claimed limitations as explained above.

Rom and Kesavan do not disclose the following features: regarding claim 15, wherein said ingress and/or egress traffic volume is controlled via a token bucket, which is shared between the ports of said plurality of ports.

Wang discloses a class-based rate control using multi-threshold leaky bucket including the following features.

Regarding claim 15, wherein said ingress and/or egress traffic volume is controlled via a token bucket, which is shared between the ports of said plurality of ports (see “each packet received from the network access device 108 removes token from a bucket input buffer 114...” recited in paragraph [0009]; that is, a token bucket is used to control the buffer representing the total traffic volume).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Rom and Kesavan using features, as taught by Wang, in order to control the data rate at the claimed apparatus.

9. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rom and Kesavan as applied to claims 14 above, and further in view of Rose (US 2004/0205228) and Raphaeli (US 2003/0103521).

Rom and Kesavan discloses the claimed limitations as explained above.

Rom and Kesavan do not disclose the following features, regarding claim 16, wherein a packet is dropped by setting the frame size parameter smaller than the minimum Ethernet frame size.

Rose discloses an apparatus for detecting tiny fragment attacks including the following features.

Regarding claim 16, wherein a packet is dropped by setting the frame size parameter smaller than the minimum Ethernet frame size (see “filter 100 will drop any frame it receives if...the calculated Length 1 is less than 16 bytes” recited in paragraph [0018], that is, Rose sets a frame size parameter of 16 bytes, and dropping packets contained in frames smaller than that size).

Raphaeli discloses a channel access method for powerline carrier based media access control protocol including the following features.

Regarding claim 16, wherein the minimum Ethernet frame size is 64 bytes (see “as small as 64 bytes (corresponding to the minimum Ethernet frame size)” recited in paragraph [0026], which shows that the 16 bytes parameter in Rose’s invention is smaller than the minimum Ethernet frame size, as required by the claim).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Rom and Kesavan using features, as taught by Rose and Raphaeli, in order to prevent tiny data fragment attack of the system.

10. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rom, Kesavan and Wang as applied to claim 15 above, and further in view of Rose (US 2004/0205228) and Raphaeli (US 2003/0103521).

Rom, Kesavan and Wang discloses the claimed limitations as explained above.

Rom, Kesavan and Wang do not disclose the following features, regarding claim 17, wherein a packet is dropped by setting the frame size parameter smaller than the minimum Ethernet frame size.

Rose discloses an apparatus for detecting tiny fragment attacks including the following features.

Regarding claim 17, wherein a packet is dropped by setting the frame size parameter smaller than the minimum Ethernet frame size (see “filter 100 will drop any frame it receives if...the calculated Length 1 is less than 16 bytes” recited in paragraph [0018], that is, Rose sets a frame size parameter of 16 bytes, and dropping packets contained in frames smaller than that size).

Raphaeli discloses a channel access method for powerline carrier based media access control protocol including the following features.

Regarding claim 17, wherein the minimum Ethernet frame size is 64 bytes (see “as small as 64 bytes (corresponding to the minimum Ethernet frame size)” recited in paragraph [0026], which shows that the 16 bytes parameter in Rose’s invention is smaller than the minimum Ethernet frame size, as required by the claim).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Rom, Kesavan and Wang using features, as taught by Rose and Raphaeli, in order to prevent tiny data fragment attack of the system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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